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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,359	04/12/2004	David G. King	2003-0782.02	3069
21972 7590 12/05/2007 LEXMARK INTERNATIONAL, INC. INTELLECTUAL PROPERTY LAW DEPARTMENT 740 WEST NEW CIRCLE ROAD BLDG. 082-1 LEXINGTON, KY 40550-0999			EXAMINER MARTIN, LAURA E	
			ART UNIT 2853	PAPER NUMBER
			MAIL DATE 12/05/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary**Application No.**

10/822,359

Applicant(s)

KING ET AL.

Examiner

Laura E. Martin

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Murray et al. (US 6435676 B1).

Murray et al. disclose the following claim limitations:

As per claim 1: a housing having an array of nozzles (figure 3, element 74); and said housing including a printhead memory (figure 3, element 49 and column 4, lines 34-56) containing data pertaining to said nozzles of said array (column 12, line 53 – column 13, line 6).

As per claim 6: providing a printhead having a housing including an array of nozzles (figure 3, element 74) and a printhead memory (figure 3, element 49 and column 4, lines 34-56); and storing data pertaining to said nozzles of said array in said printhead memory (column 12, line 53 – column 13, line 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5, 7-11, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murray et al. (US 6435676 B1) in view of Bruch et al. (US 6517184 B1).

Murray et al. disclose the following claim limitations:

As per claims 9 and 15: providing a printhead having a housing including an array of nozzles (figure 3, element 74) and a printhead memory (figure 3, element 49 and column 4, lines 34-56) storing data pertaining to said nozzles of said array (column 12, line 53 – column 13, line 6).

Murray et al. do not disclose the following claim limitations:

As per claims, 2, 7, and 9: the data includes a location of at least one missing or malfunctioning nozzle.

As per claims 3 and 8: the data includes at least one of a status or a location of said nozzles of said array.

As per claim 4: the printhead is adapted to be installed into a printer having firmware capable of reading said data from said printhead memory.

As per claim 5: the printer is adapted to use said data to format print jobs.

As per claim 9: a method of making a printer comprising the steps of: providing a printhead having a housing including an array of nozzles and a printhead memory; and storing data pertaining to said nozzles of said array in said printhead memory, wherein said data pertaining to said nozzles of said array includes a status and location of at least one missing or malfunctioning nozzle.

As per claim 10: the step of installing said printhead into a printer having firmware capable of reading said printhead memory.

As per claims 11 and 15: said firmware reads said printhead memory and a formatter formats a print job based on said data pertaining to said nozzles.

As per claim 13: said storing step includes storing a location of missing or malfunctioning nozzles using an operator performing a standard functional test.

As per claim 14: said storing step includes storing a location of missing or malfunctioning nozzles using an automated detection system.

As per claim 15: a printhead comprising: a housing having an array of nozzles; said housing including a printhead memory containing data pertaining to at least a location and status of at least one missing or malfunctioning nozzle of said array; and wherein said printhead is adapted to be installed into a printer having firmware capable of reading said data from said printhead memory and passing said data to a formatter for formatting print jobs according to said data.

Bruch et al. disclose the following claim limitations:

As per claims 2, 7, and 9: the data includes a location of at least one missing or malfunctioning nozzle of said array (column 17, lines 39-48; table 3).

As per claims 3 and 8: the data includes at least one of a status or a location of said nozzles of said array (column 17, lines 39-48; table 3).

As per claim 4: the printhead is adapted to be installed into a printer having firmware capable of reading said data from said printhead memory (column 14, lines 47-51).

As per claim 5: said printer is adapted to use said data to format print jobs (column 14, line 63- column 15, line 5).

As per claim 9: a method of making a printer comprising the steps of: providing a printhead having a housing (figure 4, element 400) including an array of nozzles (figure 4, element 410) and a printhead memory; and storing data pertaining to said nozzles of said array in said printhead memory, wherein said data pertaining to said nozzles of said array includes a status and location of at least one missing or malfunctioning nozzle (column 17, lines 39-48; table 3).

As per claim 10, Bruch et al. teach a method of making a printer further comprising the step of installing said printhead into a printer having firmware capable of reading said printhead memory (column 14, lines 47-51).

As per claims 11 and 15: said firmware reads said printhead memory and a formatter formats a print job based on said data pertaining to said nozzles (column 14, line 63- column 15, line 5).

As per claim 13: said storing step includes storing a location of missing or malfunctioning nozzles using an operator performing a standard functional test (column 14, lines 45-46).

As per claim 14: said storing step includes storing a location of missing or malfunctioning nozzles using an automated detection system (column 3, lines 13-28).

As per claim 15: a printhead comprising: a housing (figure 4, element 400) having an array of nozzles (figure 4, element 410); said housing including a printhead memory containing data pertaining to at least a location and status of at least one missing or malfunctioning nozzle of said array (column 17, lines 39-48; table 3); and wherein said printhead is adapted to be installed into a printer having firmware (column 14, lines 47-51) capable of reading said data from said printhead memory and passing said data to a formatter for formatting print jobs according to said data (column 14, line 63-column 14, line 5).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the printhead and methods taught by Murray et al. with the disclosure of Bruch et al. in order to create a higher quality printer that prints high quality images and to improve servicing processes without affecting the printhead rate.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murray et al. (US 6435676 B1) and Bruch et al. (US 6517184 B1), and further in view of Kojima (US 6719391 B2).

Murray et al. as modified disclose the following claim limitations:

As per claim 12: a method of making a printer

Murray et al. as modified do not disclose the following claim limitations:

As per claim 12: a method wherein said data pertaining to said nozzles includes a location of at least one missing or malfunctioning nozzle and said printer compensates for said at least one missing or malfunctioning nozzle by shingling.

Kojima teaches the following claim limitations:

Kojima teaches a method wherein said data pertaining to said nozzles includes a location of at least one missing or malfunctioning nozzle and said printer compensates for said at least one missing or malfunctioning nozzle by shingling (column 9, lines 10-37).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Murray et al. as modified with the method taught by Kojima in order to provide for a higher quality printed image and to reduce banding.

Response to Arguments

Applicant's arguments filed 7/16/07 have been fully considered but they are not persuasive.

Applicant argues that Murray et al. do not teach or suggest storing data pertaining to the nozzles; however, the examiner disagrees. The claim language, "said housing including a printhead memory containing data pertaining to the nozzles of said array" is broad and encompasses any data that relates to the nozzles. A memory that stores the number of ink drops expelled from the nozzles is disclosed in Murray et al. (column 12, line 53-column 13, line 6). The number of droplets being expelled from the nozzles reads on the claim as data that pertains to the nozzle array. The number of droplets being expelled is counted from all the nozzles, including nozzles from a single nozzle array. This information, which pertains to the nozzles as it is from the nozzles that the ink droplets are ejected, is stored in the memory.

Applicant also argues that Bruch et al. is not an obvious modification to Murray et al. because it fails to disclose a memory located on a printhead. Bruch et al. discloses a memory that saves information dealing with the printhead and nozzles in column 4, lines 56-67. While the memory is not located on the printhead, the memory taught by Murray et al. is located on the printhead, which satisfies the above claims. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the printing apparatus taught by Murray et al. with the disclosure of Bruch et al. in order to improve servicing processes without affecting the printing rate. It is also well known in the art to have memories storing nozzle data in different locations within the printer.

The applicant also argues that Murray et al. do not disclose storing nozzle map data; however, such data is not presented in the claims. Nozzle data is not limited within the independent claims, thus any data pertaining to the nozzles (including ink being expelled from said nozzles) reads upon the claim language.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Laura E. Martin



STEPHEN MEIER
SUPERVISORY PATENT EXAMINER